We come now to treat of the cephalic states of fever. Before I enter upon this subject I shall deliver some remarks upon the brain and its appendages which are partly of a physiological and partly of a pathological & practical nature.

I taught you in our physiology ~~that the Spleen~~ in the early part of our course ~~to~~ in treating upon the circulation of the blood, I said that the ~~brother~~ maker of our bodies had guarded against ~~the~~ inordinate or tumultuous motions of the blood by means of the Spleen when the blood vessels were unusually excited throughout the whole system — by the thymus gland when it was determined in ~~it~~ an unusual quantity to the lungs, by the

the extirpation of the
~~are experiment~~

I formerly supposed from ~~a fact in~~ made
~~upon~~ the Thyroid gland by Mr Cooper pro=
=ducing fatality in Dogs, that this gland ser=
=ved to arrest and detain the blood when too
forcibly determined to the brain. But ~~I not~~
~~[illegible]~~
~~to be~~ from the small ~~size~~ capacity of that gland,
and from ~~a hard~~ any not admitting the
inferences from Mr Cooper's ~~fact~~ experiments
I have rejected that supposition. Dr Reeve
in his essay on Cretinism published in the
5th vol. of the Edin. medical and Surgical journal
tells us that in those countries where Cretins
are most numerous, many people of sound &
vigorous minds have Bronchocele, and that the
combination of Bronchocele and ~~Cretinism~~ idiotism
is altogether accidental. The Thyroid gland,
believe arrests ~~nervous~~ determination to the
brain only, but never arterial. Its use I believe
is chiefly as a waste gate to the larynx in I apprehend
singing and speech.

glandula renales when it was too copiously sent to the Kidneys, & by the Thyroid gland when the larynx was over distend=ed with blood from loud, or long speak=ing, or singing. In contemplating the ~~[illegible]~~ frequent exposure of the brain to an undue flux of blood from fevers, from all the causes of apoplexy, palsies & madness, from long ~~blood~~ speak=ing, from anger, and even from the recumbent posture of the body in sleep, I was led to inquire what provision had been made to obviate the illeffects of ~~the~~ a redundant quantity of blood sent by all those causes to the brain. I suggested formerly that ~~the~~ I thought it most probable the

Ventricles of the brain served this impor=
=tant purpose. Upon a more close
examination of this opinion, and
from its connection with the means
of obviating disease from the same causes in
a continuous part of the body I have no doubt
of its correctness. The lungs &
the liver and the pancreas obviate the ill
effects of being over distended with blood
for a while, by their giving way as it were, that
is by increasing in their bulk, but
this cannot take place in the brain.
The Cranium prevents its
dilatation; and this it is said to such a
degree as even to prevent the elevation

Indeed there can be no doubt of this being the case, Baglivi tells us he found lbs of coagulated blood in the Ventricles of the famous Anatomist Malpighi who died of an apoplexy. Allowing the bloodvessels to be instant emptied of their blood to admit of this large accumulation of it in the Ventricles, still it shows that they are capable by compression of affording room for more than five or six ounces of redundant blood. –

of ~~the~~ its arteries into pulsation. In this case, ~~the Ventricles which~~ these cavities which we call Ventricles ~~which are~~ give way ~~[illegible] afford~~ or become ~~more~~ prepid together, and thus afford more room for the distention of the arteries & veins of the brain with redundant blood. In a child of three or four years old, they ~~contain~~ are found to contain in a hydrocephalus intervenes from 3 to 5 & 6 ounces of water. It is probably they afford room by their compression and contact for a greater quantity of blood in an adult. It is possible the longitudinal & lateral sinuses of the brain may assist the ventricles by retaining a greater quantity of blood than is natural to them, when an ~~[illegible]~~ unusual quantity of

blood is sent to the brain. I proceed next to mention the provision which the maker of our bodies seems to have made for redundant blood in another and continuous part of the body, and that is in the Medulla Oblongata and Spinalis. These are said to be a continuation of all the component parts of the brain. They are possessed of the same coverings, and are provided like the brain with arteries & veins which convey blood to and from them. The means employed to prevent their being suddenly injured by an undue influx of blood into them appear to be the following.

1 A small space or cavity between them and the bones of the Vertebra. This

cavity is described by Portal

2 a small aperture or cavity in the middle of the spinal marrow. This cavity is most obvious in children. You may see ~~in~~ a draft of it in ~~Dr Gall's~~ Dr Galls ~~bon~~ plates of the brain in the Pennsylvania hospital. Morgagni ~~Dr Portal~~ describes a case of spina bifida in which a communication was discovered between it & the 3rd ventricle of the brain ~~and of this bone~~ by means of this internal cavity, and its existence is admitted by Riolphomini. Bauhin & Malpighi ~~[illegible]~~ Cuthbertson quoted by Dr Portal.

3 the ~~vertebra~~ spinal marrow is plentifully supplied with bloodvessels from the anterior and posterior spinal arteries & from the vertebral, intercostal, lumbar & sacral

N Dr Portal mentions two striking facts in support of the opinions I have advanced. 1 In a child affected with Spina bifida he distinctly saw the tumor enlarged in every respiration, and lessened in every expiration. This child died. He found after death a cavity large enough to admit a quill which communicated with the 3rd ventricle of the brain. 2 He opened & inspected the vertebræ of several dogs & cats & distinctly saw the Medulla Spinalis enlarged & lessened with each inspiration, and expiration. These motions extended only to 3rd and 4th ~~[illegible]~~ cervical vertebræ in both cases. Vol: IV. p: 66.

asteries. The Veins which return the blood which is carried by them are 4 in number and larger than the asteries - one of them is anterior, another posterior, and two are lateral. They are so large Portal says that they might be called a Sinus. These Veins probably serve by their distension to aid the two cavities I have mentioned in relieving the medulla oblongata & spinalis from the ill effects of redundant blood when thrown upon them.

The diseases of the spinal marrow, or the brain in the Vertebra favour the theory I have delivered of the uses of the cavities &c

~~and 2.ly the water in the Spina Bifida protrudes the coats and co[illegible] the coats of the spinal marrow, whereas the water in the~~

in which case it ~~perfectly~~ accords in every respect with the Hydrocephalus Externus ~~Thus it perfectly accords with the Hydrocephalus Externus, it ought to be called~~ N found two external openings instead of one. It was a more extended form of the same disease.

Sinus ~~in it~~ which have been mentioned.

1 The Spina Bifida is nothing but an external Dropsy of the Spinal marrow in ~~as~~ every respect similar to the external Dropsy of the brain, except in the following particulars, ~~the~~ the external Dropsy of the brain is induced by an opening of the sutures of the brain – the Spina bifida, by the absence ~~[illegible]~~ of a Spinal process of the Vertebra. ~~But~~ but it we are told sometimes ~~it~~ appears with a gaping ~~of~~ or opening between two of the Vertebra, — There is a case upon record by Morgagni in which the discharge of water by the Spina Bifida produced the of ~~[illegible]~~ a puncture collapse of a brain distended with Hydro-cephalus ~~[illegible]~~ internus. In this case the water

2 a severe pain in the back generally

accompanies
fevers of great morbid action as certainly
as a pain in the head. may not this
be occasioned by the cavities & sinuses I
have described, being so overcharged with
blood, as no longer to prevent its preß
upon and distending the dura ~~mater~~
& other coverings
matter of the spinal marrow, and
thus to ~~to~~ excite the pain I have mentio-
-ned.

3 may not the palsy of the lower limbs and
~~[illegible]~~ of the bowels
be occasioned oftener by the depression of
the nerves which issue from the ~~spine~~
~~by the [illegible]~~ spinal marrow ~~being pressed~~
by too much blood, than by any other
~~[illegible]~~
cause?

4 may not the weakness in the lower
trunk of the body,

limbs, and obstructions in the bowels in fevers ~~by~~ be sometimes induced by the same cause? —

But quit: ~~the~~ I will no longer rest the opinion of the morbid state of the spinal marrow upon conjectures & analogy. ~~Dr~~ This obscure and ~~long~~ ~~lone~~ ~~lo~~ cased part of the body has not escaped the anatomical eye & knife of Dr Portal. In the 4th volume of his Anatomy p. 112 he has the following remarks which I ~~shall~~ translate into our language. ~~(Where I shall~~ "The medulla spinalis (says the Dr) is often compressed and even contracted by humors effused into the vertebral canal, or between its membranes, or which engorge its surface. These humors are water, blood, mucus lymph, gelatinous & steatomatous matter & pus or ichor which has been the effect of inflammation". Besides these marks of disease

6

the Dr adds, "induration, softness, inflammation suppuration and Ulceration have been found in the medulla spinalis, And there is no doubt but that like the brain is is capable of being affected by Consumption." He then concludes by saying "in a word, the diseases of the medulla spinalis have a great affinity with the diseases of the brain, and are more common than is generally supposed". ~~In addition to this number of~~

~~the~~ The practical inference from all the facts and opinions that have been ~~[illegible]~~ delivered are, the Propriety and Safety of Wine in diseases of the brain from redundant blood. Were we to live agreeably to reason, the ventricles and ~~[illegible]~~ Sinuses of the brain would be sufficient to ~~[illegible]~~ prevent injury to it in common

3 In treating upon pulmonary Con=
=sumption I advised the Application
of Blisters between the shoulders along
the Cervical & ~~Lumbar~~ Dorsal Vertebræ. I
have repeatedly seen them do more
service when applied there, than to the
sides or breast. Was not the reason ~~why~~
of this be – the blister lessening Congestion
in the Spinal Vertebræ which supply
a portion of nerves which unite with
the par Vagum & great Sympathetic nerves
which ~~nerves~~ are distributed to the Thoracic
& Abdominal viscera?

4 Was not the efficacy of a Burgundy
pitch plaster to ~~the~~ the external parts of
the Cervical ~~and~~ dorsal Vertebræ, and
of other stimulating applications to the
same parts, ~~too owing to their~~ in the Hooping

cons, but the pursuits, pleasures habits & vices of civilized life, render them too scanty for that purpose. The quantity of blood sent to the brain requires the aid of the lancet to assist the Ventricles and ~~lateral~~ Sinuses in the Uses I have ascribed to him.

3 From the use of the waste cavities which I have ~~shown~~ described in the Spinal marrow, it is alike obvious that many diseases in the nervous & muscular parts of the body which are supplied with nerves from the Spinal marrow, are, from the inability of those cavities to afford ~~shelter~~ room for all the blood that is sent ~~to~~ them, induced by ~~too much fullness~~ an excess of blood in the Spinal marrow, and that they require, especially in their first stage, remedies, the reverse of, what are too often

~~Lungh - be owing to ~~[illegible]~~ their inducing such lesions in the Spinal marrow, &c~~ ?

V This, — from the sameness of its cause ~~[illegible]~~ with Hydrocephalus internus —

prescribed for them; I mean depleting re-
-medies. I shall illustrate ~~what I~~
~~by a reference to a single disease~~ what I
mean by a reference of a single disease.
I have said the Hydrocephalus internus is
~~a reference to~~ so much
~~so~~ induced by ~~a~~ ~~of~~ ~~the~~ blood
being ~~sent to offend into~~ sent to the ~~bad~~
brain as to produce a passage of its serous
parts into the ventricles, or by the force
of the blood forcing open ~~the~~ or widening the
sutures ~~and~~ and ~~forcing them~~ thus pro-
-ducing a Hydrocephalus ~~intra~~ externus.
I have said further that a disease similar to the
~~latter~~ ~~two similar diseases are produced~~
latter is produced in the Spinal marrow by the same causes.
but Dr Portal ~~tells us~~ tells us that water is found in the
~~cavities~~ its cavities. ~~This~~ may be called
Hydro vertebralis internus, while the Spina
Bifida which is produced by water forcing its

which are the the effects of fevers. I have called them asphalic states of fevers. —

way outwards by the destruction of a Spinal process, or by insinuating itself between two of the Vertebra ~~this~~ ~~disease~~ might be called a Hydrovertebralis externus. ~~The only difference between~~

I shall apply the facts & principles I have thus delivered to several other diseases in the sequel of our lectures.

However ~~great the precautions which~~ wisely and kindly the peculiarities in the brain I have noticed appear to be intended to prevent its diseases, from many circumstances they are not always sufficient in common with the Spleen, Thymus & Thyroid glands & glandulae renales for that purpose. The ~~diseases~~ diseases of the brain from an undue determination of blood to it are numerous. At present, I shall ~~take~~ confine myself only to these diseases